November-09-12 1:50:24 PM

Item ID: Accept \*N900040100\* **Revision ID:** Crosstube Turning Detail Litem Name: Start Date: 11/09/12. Start Qty: 1.00 **Cust Item ID:** Required Date: 11/20/12 Req'd Qty: 1.00 **Customer:** Reference: Run Start Process Plan: ML 5 Date: 12-11-12 Tooling: Approvals: Stop Date: SPC-(Y/N): Date: Sequence ID/ Reject Operation Set Up/ Tool ID Tool # Plan Accept Reject Insp. Work Center ID Description Qty **Run Hours** Code **Qty** Number Stamp **Draw Nbr Revision Nbr** D212-664-141 Rev D (DEO) 100 0.00 MORI SEIKI CNC LATHE LARGE \*100\* Mori Seiki 0.00 Memo Mori Seiki CNC Lathe Large 1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA113 2-Turn first side as per Folio FA113 3-Blend transition lines only, \*\*do not sand whole tube\*\*: DWG REV: \*Use mill bastard file, brush file repeatedly with file card. \*Do not use sandpaper coarser than 320 grit. QC1- Inspect dimensions to dimension sheet 0.00 0.00 Memo Quality Control

NCR	Yes	1	No

# WORK ORDER NON-CONFORMANCE / UPDATE

1 4	<b>*</b>	
DQA: Aux Date:	17/11/20	
DUA. Jul Date.	141701	
<del>, , , , , , , , , , , , , , , , , , , </del>		_
/		

_	QA Closed: / C Date: //											
Work Orde	r:	93	389	57		DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
	1			•		Rework	ł	Skid-tube 🔫	Crosstube		Water Jet	Engineering
Part N	<u>د</u> .ه	<u> </u>	-66L	1-10	ITRN	Scrap	ł	Machining	Small Fab	ł	d. Eng. Coor.	Quality
			<b></b>	/10		Use-as-is[X	Ther	moforming	Finishing	Rec/Sto	re/Packaging	Other
NCR N	o	12	<u>~ 120°</u>	<u>5 w</u>		Work Order Update		Large Fab	Composite		Supplier	] []
Root	Ţ				Descri	otion of work order update	Initial	Act	ion	Sign &		<u> </u>
Cause		Date	Step	Qty	•	or Non-conformance	Chief Eng		iption	Date	Verification	QC Inspector
Doc/Data							~^^					
Equip/Tooling			100		Wall	thickness measurements  Stolerance.	0AV	1- Va ho 000	7/1 1 1 1 /			690
Operator	ال	12/11/15	100	,	out a	(1.2	6.60		L7 bd ~	DAC.	TW 12-11-15	(0°C)
Material `	4				05( 2	of tolerance.		aws nomi	nal.	3.63	NW	0-60
Setup	4		·				12/11/15	- A. 10		11 1		12/11/20
Other	4							Helephole		77715	12-11-12	1 civil w
Process Supplier	$\dashv$							- Up to 0.0; dwg nom; - Acceptable - Ensure this up/down in &	المالية المراجعة		7	
Training	$\dashv$	I						ensoic	who oriented			
Unapproved	$\dashv$							up/down in b	adder. bender			
						F.	AULT CAT	EGORY		1.		-1
Landin	g Ge	ear				General	•		·			
	X) E	Bending			A	Bend	Grain			Ovalized		Pressure/Forced
		Centre No	t Concen	ntric to (	o/s	BOM/Route	Hardw	are	· 📝	Over/Under	tolerance	Temperature/Cure
		Cracks				Broken/Damaged	Inspec	tion Incomplete		Part Incorre	ct _	Weld
		Crushed/C	rimped.			Burrs	Instru	tions Incomplete/U	Inclear	Part Lost/M	issing	Wrong Stock Pulled
	_	Cuffs				Contamination	Maint	enance		Part Moved		
		leat Treat				Countersink	Mislat	eled		Positioned V	Vrong	
	_	nspection	•	Tube		Cut Too Short	Misrea	ad		Power Loss/	Surge	Other
	-1	Ripples in			<u> </u>	Drill Holes	Offset					
	_	orque Wa		xtrusior	`  _	Drawing	_	Calibration				
		urning Se				Finish	-	Sequence				
	١	Vave/Twi	st in Tub	e		Folio	Outsic	e Dimensions				

130

QC1- Inspect dimensions to dimension sheet

3-Remove sand and plugs

0.00

\*13**0**\*

Memo

0.00

¿ Quality Control

+ PERFORM ULTRA SONIC MEASUREMENT

) Ø

manl 12/11/15

NCR: Y	'es / No				WORK ORDER NON-O	CON	IFOR!	MANCE / UPI	DATE		<del></del>	
										QA Closed:	Date:	
Work Orde	er:				DISPOSITION				AGAINST DE	PARTMENT	PROCESS	
					Rework	1		Skid-tube	Crosstube		Water Jet	Engineering
Part N	lo.				Scrap	1		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
					Use-as-is	1	Thern	noforming	Finishing	Rec/Stor	e/Packaging	Other
NCR N	lo				Work Order Update	]		Large Fab	Composite		Supplier	
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Root				i .	ption of work order update	1	nitial		tion	Sign &	_	
Cause	Date	Step	Qty	(	or Non-conformance	Ch	ief Eng	Desci	ription	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling	_											
Operator	_											
Material	_											
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Process												
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landir	ng Gear				General	AUL	T CATE	GURY			<del></del>	
Lanuii					Bend		Grain			Ovalized		70
•	Bending	lot Conce	ntrio to 1	~  -	BOM/Route	$\vdash$	Hardwa		-		talaranaa -	Pressure/Forced
1	Cracks	iot conce	וונוונ נטי	<sup>0/3</sup>  -	Broken/Damaged	$\vdash$				Over/Under	<del></del>	Temperature/Cure
-	<del></del> i	/Crimped		-		$\vdash$		ion Incomplete	linalaan 📙	Part Incorre	<del> </del>	Weld
ŀ	Cuffs	/ Crimpea		$\vdash$	Burrs Contamination	-	Mainte	ions Incomplete/	Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled
}	Heat Tre	at		-		$\vdash$			<u></u>	Part Moved	M	
}			Tuba	-	Countersink	$\vdash$	Mislabe		-	Positioned V		] ]
}	_	on Strip in	rube	-	Cut Too Short	$\vdash$	Misread	ג		Power Loss/	Surge	Other
-	Ripples		~ <b>.</b>	. ⊢	Drill Holes	$\vdash$	Offset	2-19				
1	orque \	Naves in 8	extrusio	n	Drawing		Out of (	Calibration				

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Order ID 92857

Hand Finishing Crosstubes

\*92857\*

Page 3

November-09-12	1:50:24 PM										
Item ID: Revision ID: Item Name:	D212-664-101TRN  Crosstube Turning Detail	: :		Accept	*N900	040	100*	Setup	Start Stop	*NS	31* 20*
Start Date: Required Date: Reference:	11/09/12 <b>Start Q</b>	ety: 1.00 Qty: 1.00	*1* *1*		Cust Item I	D:				IVI	7/
Approvals:	Process Plan: QC:		e: e:			nte:		Run	Start Stop	*NF	₹1* ₹2*
Sequence ID/ Work Center II	-	tion		Set Up/ Run Hours	Tool ID	Tool #	Plan Acce Code Qty	ept Rej Qty		eject umber	Insp. Stamp
*140 *140* QC Quality Control	QC8- Insp	Memo + CHECK ULTRA S BENDING		0.00 0.00 REMENT AND ORIENTATI	ON FOR		L	)	12-	11-16	
*145  *145  Crosstubes  Crosstubes		<b>Memo</b> GRIND ONLY TRA	NSITION LINE	0.00 0.00 S SMOOTH LONGITUDE W	AY.		M	<u> </u>	(	2/11	19
150 <b>*150*</b> HandFXtube		Memo		0.00			Mo		2/11	19	

2- ACID ETCH X-TUBE INSIDE AND OUT. USE RED SCOTCH BRITE

1- PRESSURE WASH X-TUBE INSIDE AND OUT

								DQA:	Date:	
NCR: Yes	s / No			WORK ORDER NON-	CONFOR	MANCE / UF		QA Closed:	Date:	
<u> </u>		·		DICOCCITION	1	<u> </u>				
Work Order:				DISPOSITION			AGAINST DE	PAKTIVIENT	/PROCESS	
	•			Rework	7 I	Skid-tube	Crosstube		Water Jet	Engineering
Part No.				Scrap	1	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
				Use-as-is	The	moforming	Finishing	Rec/Sto	re/Packaging	Other
NCR No				Work Order Update		Large Fab	Composite		Supplier	
			`							
Root				Description of work order update	Initial	A	ction	Sign &		
Cause	Date	Step	Qty	or Non-conformance	Chief En	g Des	cription	Date	Verification	QC Inspector
Doc/Data										
Equip/Tooling										
Operator	_			120						,
Material				¥						
Setup						3.00				
Other	_			**) x						
Process					1					
Supplier			4.4	,						
Training										
Unapproved	<u> </u>				1			l		
					AULT CAT	EGORY				

Landing	Gear	General		_		_	_
	Bending	Bend		Grain	Ovalized		Pressure/Forced
	Centre Not Concentric to O/S	BOM/Route		Hardware	Over/Under tolerance		Temperature/Cure
	Cracks	Broken/Damaged		Inspection Incomplete	Part Incorrect		Weld
	Crushed/Crimped.	Burrs		Instructions Incomplete/Unclear	Part Lost/Missing		Wrong Stock Pulled
	Cuffs	Contamination		Maintenance	Part Moved		
	Heat Treat	Countersink		Mislabeled	Positioned Wrong		
	Inspection Strip in Tube	Cut Too Short		Misread	Power Loss/Surge		Other
	Ripples in Bend	Drill Holes		Offset	 		
	Torque Waves in Extrusion	Drawing		Out of Calibration			
	Turning Sequence	Finish		Out of Sequence			
	Wave/Twist in Tube	Folio	Г	Outside Dimensions			

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

0.00

0.00

180

QC

\*120\*

Quality Control

QC21- Final Inspection - Work Order Release

Memo

12/11/11/0 mx p 12-11-P

											DQA:	Date:	•
NCR:	'es	/ No					WORK ORDER NON-C	O	NFORM	MANCE / UPDATE			
											QA Closed:	Date:	:
Nork Orde	er:						DISPOSITION			AGAINST D	EPARTMENT	PROCESS	
Part N	٠,						Rework Scrap Use-as-is Work Order Update		١	Skid-tube Crosstube Machining Small Fab noforming Finishing Large Fab Composite		Water Jet d. Eng. Coor. e/Packaging Supplier	Engineering Quality Other
Root					Des		otion of work order update	)	nitial	Action	Sign &		
Cause		Date	Step	Qty		С	r Non-conformance	Ch	ief Eng	Description	Date	Verification	QC Inspector
oc/Data	_												
quip/Tooling								ļ			:		
perator													
1aterial								l					
etup													
ther	_					ΰ	_						
rocess	_					Ų					-1-		
upplier													
raining													
Inapproved													
								AUL	T CATE	GORY			
Landi					r		General		1	_	-	F	7
		Bending					Bend	_	Grain	_	Ovalized	_	Pressure/Forced
		Centre No	t Concer	ntric to (	D/S		BOM/Route	L	Hardwa	· -	Over/Under	<b>—</b>	Temperature/Cure
		Cracks					Broken/Damaged	_	4 `	on Incomplete	Part Incorre	<b></b>	Weld
	_	Crushed/C	Crimped.				Burrs	<u> </u>	1	ions Incomplete/Unclear	Part Lost/M	issing	Wrong Stock Pulled
		Cuffs					Contamination		Mainte	<b>⊢</b>	Part Moved		
		Heat Trea	t				Countersink		Mislabe	<b>⊢</b>	Positioned V		7
		Inspection	n Strip in	Tube			Cut Too Short		Misread	1	Power Loss/	Surge	Other
		Ripples in	Bend				Drill Holes		Offset				
		Torque W	aves in E	xtrusio	٦ [		Drawing		Out of (	Calibration			
		Turning Se	equence				Finish		Out of 9	Sequence			

Outside Dimensions

Wave/Twist in Tube

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

## **Picklist Print**

November-09-12 1:50:24 PM

Work Order ID:

92857

Parent Item:

Comments:

D212-664-101TRN

Parent Item Name:

Crosstube Turning Detail

IPP Rev:A 08-03-06 new issue DD verified by:ec

Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6005-128		Manufactured	No			120	Each	35.0000	1	1			
Crosstube Material									VIEW PROPERTY	<u> </u>			•

35

35

-1- mand 12/11/12

Required Date: 11/20/12

Required Qty: 1.00

**Start Date:** 11/09/12

Start Qty: 1.00

Page 1

											DQA	۸: Date	e:
NCR:	Yes	/ No				WORK ORDER NON-C	100	<b>NFORM</b>	MANCE / UP	DATE			
				-							QA Closed	l: Date	e:
Work Ord	er.					DISPOSITION				AGAINST DE	PARTMEN	T/PROCESS	
Work Ord	CI.					Rework	1		Skid-tube	Crosstube		Water Jet	Engineering
Part	No.					Scrap			Machining	Small Fab	Pr	od. Eng. Coor.	Quality
						Use-as-is	]	Therm	noforming	Finishing	Rec/Sto	ore/Packaging	Other
NCR	No.					Work Order Update	]		Large Fab	Composite	]	Supplier	
			T			<u> </u>				.,	T 6: 0		
Root		5.	<u>.</u>	۵.		ption of work order update		nitial		tion	Sign &		064
Cause	т—	Date	Step	Qty	(	or Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data	-				-3								
Equip/Tooling	-						1						
Operator	<u> </u>												
Material	<u> </u>												
Setup	$\vdash$												
Other	<u> </u>												:
Process	$\vdash$												
Supplier	<u> </u>			-									
Training													
Unapproved			<u> </u>	L	<u> </u>		1						
							AUL	T CATE	GORY				
Landi	_	1				General		1		_	7	_	
	-	Bending				Bend		Grain			Ovalized		Pressure/Forced
		Centre No	ot Concer	ntric to	o/s	BOM/Route	$\perp$	Hardwa	re		Over/Unde	er tolerance	Temperature/Cure
	$\overline{}$	Cracks		*		Broken/Damaged		1	on Incomplete		Part Incorr	ect	Weld
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/	'Undear	Part Lost/N	Missing	Wrong Stock Pulled
	L	Cuffs				Contamination		Mainte	nance		Part Move	d	
		Heat Trea	it			Countersink		Mislabe	led		Positioned	Wrong	<u> </u>
		Inspection	n Strip in	Tube		Cut Too Short		Misread	i		Power Los	s/Surge	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

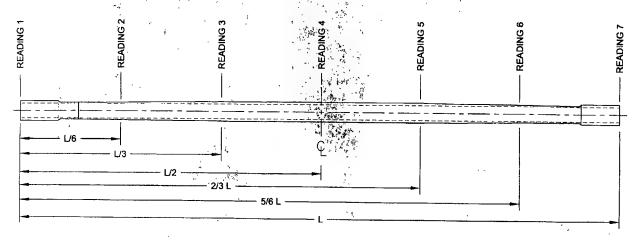
DART AEROSPACE LTD	Work Order:	92857
Description: Crosstube Assembly (205/212/412 High Fwd)	Part Number:	D212-664-141
Inspection Dwg: D212-664-141 Rev: D		Page 1 of 2

# FIRST ARTICLE INSPECTION CHECKLIST

	spection Sheet	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
	0.200	+/-0.010	1200			venn	CIAIO
	R0.063	+/-0.010	063			RG	CMC-OS
	2.740	+0.005/-0.000	2.741			vern	- (5 0.5)
	5.097	+/-0.030	5.100			DEFT	CWC-08
	2.304	+0.005/-0.000	2-308			<del>                                     </del>	
	2.340	+0.005/-0.000	2.742				
<b>V</b>	2.398	+0.005/-0.000	2.403				
SIDE	2.448	+0.005/-0.000	2-453				
o,	2.498	+0.005/-0.000	7-503	7		<del>                                     </del>	
	2.549	+0.005/-0.000	2.554			<del>                                     </del>	
Ì	2.599	+0.005/-0.000	2.603				
İ	2.671	+0.005/-0.000	2/274				
	2.701	+0.005/-0.000	2.703		·	4	
	0.200	+/-0.010	200			venn	(NI-00
1	R0.063	+/-0.010	-013			RG	(NL-08
	2.740	+0.005/-0.000	2.741	/		vern	r.NI-sid
[	5.097	+/-0.030	5.100			1	
	2.304	+0.005/-0.000	2.308				
~	2.340	+0.005/-0.000	2340				
Ш В	2.398	+0.005/-0.000	2.401	_			
SIDE	2.448	+0.005/-0.000	2,451				
	2.498	+0.005/-0.000	2.501				
	2.549	+0.005/-0.000	2-554				
  -	2.599	+0.005/-0.000	2.603				
	2.671	+0.005/-0.000	2.674				
	2.701	+0.005/-0.000	8.703			J.	
	126.514	+/-0.020	126514			tupe	L6-27

DART AEROSPACE LTD		Work Order:	92857
		·	
Description: Crosstube Assembly (205/2	212/412 High Fwd)	Part Number:	D212-664-141
	#1.	4	
Inspection Dwg: D212-664-141 Rev: [	O		Page 2 of 2

# WALL THICKNESS MEASUREMENT



	WALL	THICKNESS	MEASUREMEN	NT (IN)	Deviation	
Location	w1	w2	w3	w4	Δw (max-min)	TOLERANCE
READING 1 L= 0"	378	.395	.391	360	035	
READING 2	.193	.227	.229	198	.036	
READING 3	.273	. 36Ce	3/8	.278	-048	5
READING 4	.351	.394	386	. 370	~O34	0.048"
READING 5 L= 30	.299	.321	.292	263	820.	Dug= 0,280
READING 6	.2/2	.243	-314	176	-067	Jug= 0.200
READING 7 L= CWF	-,366	,404	- 385	346	1658	

**Calibration Result** 

Actual Block Thickness: 100 -500

Sitescan 250 Measured Thickness: 100 500

Measured by: Ann.L	Audited by: Tu	Preliminary Approval:	
Date: 12/11/19	Date: 12-11-16	Date:	1
Pou Data Change			

Rev	Date	Change	Revised by	Approved
Α	05.04.27	New Issue (P/O D412-664-101)	KJ/JLM	Approved
В	06.03.15	Tolerance revised for 5.097 per Dwg Rev update	KJ/JLM	<del> </del>
С	07.05.28	Dwg Rev updated ::	KJ/JLM	<del>                                     </del>
D	10.02.02	Dimension 126.514 was 126.51	KJ . A	
E	12.06.04	Wall thickness form added	KJ (A)	14

Item	Qty Qty Part Number -141 -141B			Part Number	Description
1	Х		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)	
2		Х	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)	
3	1	1	D6005-128	CROSSTUBE	
4	2	2	D2893-1	SUPPORT	
5	4	4	D3595-063-450	RUBBER CUSHION	
6	. 4	4	MS21920-25	CLAMP (OR MS21920-26)	
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTROM/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)	

#### **GENERAL NOTES:**

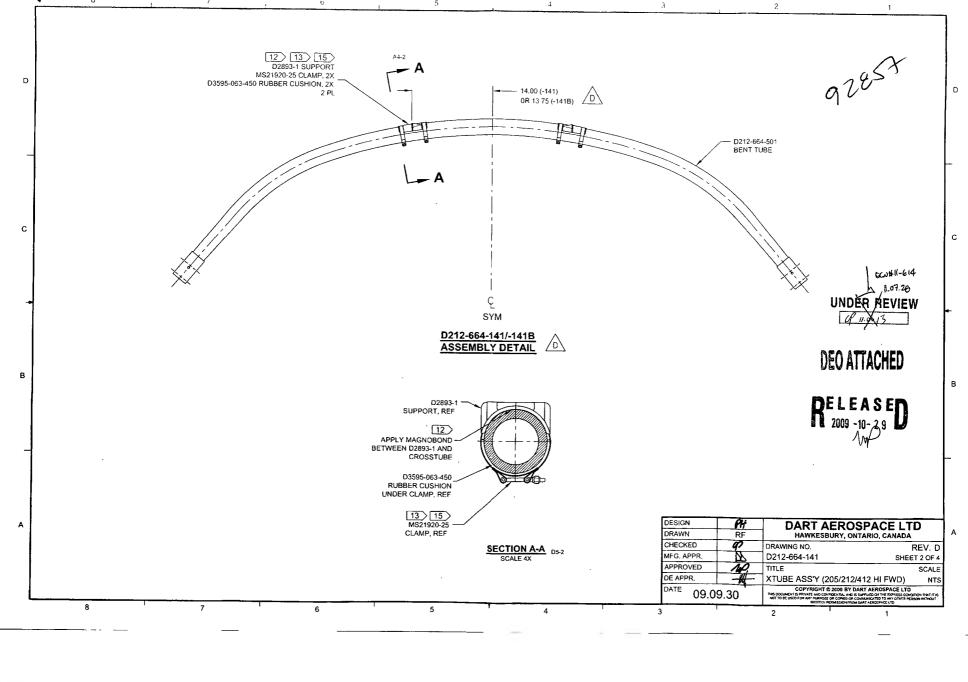
- 1) MATERIAL: MANUFACTURED FROM D6005-128
  - FINISHED LENGTH = 126.514±0 020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4 2 PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES 0 005 TO 0 010 MAX.
- IDENTIFICATION SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664) D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART, BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0 03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0 005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

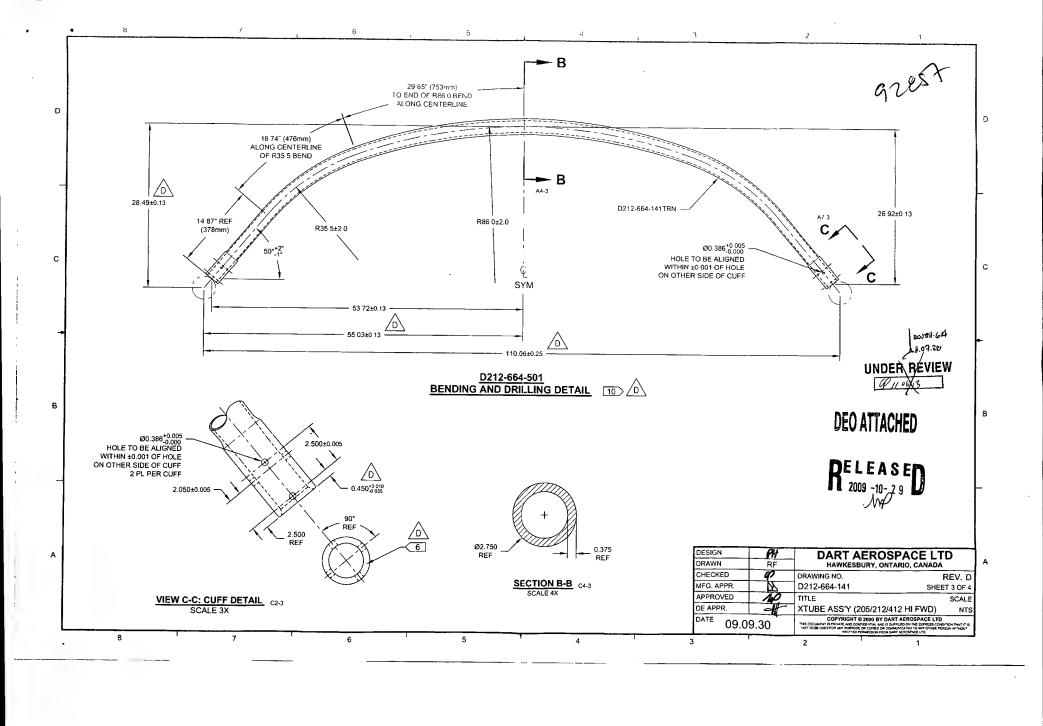
INCC Charles To Market A DOWN COLLECT さい 1.(4) 年代 92857 MLJ 12-11-12

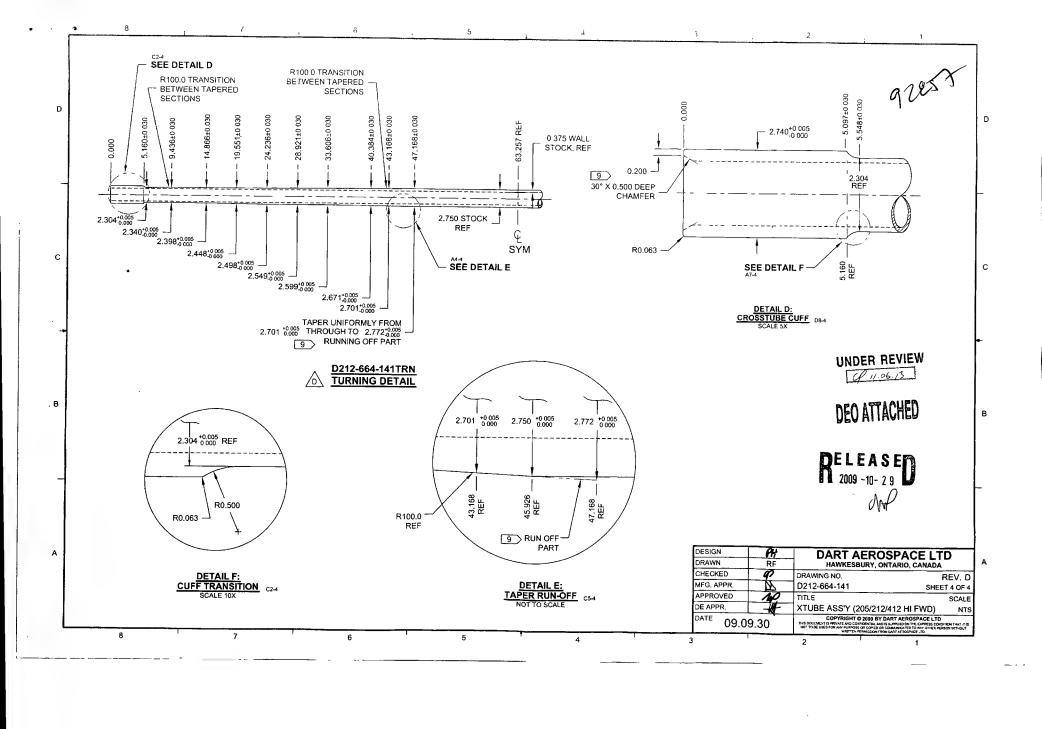
REMOVED FROM WIDER REVIEW PER UNDER REVIEW SCHILL-GIA

DEO ATTACHED

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD. 1418 (ZN 84-2, 04-2), REMOVED REF & ADD TOLERANCES (ZN 84-3, C8-3, C8-3 & B6-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4					
С			ASION STRIP; ADD MAGNOBOND VERSE CLAMPS	PH	07.03.08	
В	ADD H SKIDTI	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES			05.02.04	
Α	NEW (	SSUE	PH	00.12.12		
REV.	DESCRIPTION				DATE	
DESIGN	DESIGN PH		DART AEROSP	ACE	ITD	
DRAWN		RF	HAWKESBURY, ONTARIO, CANADA			
CHECKE	D	97	DRAWING NO.		REV. D	
MFG. AF	APPR.		D212-664-141			
APPRO\	PPROVED 10				SCALE	
DE APP	₹.	4	XTUBE ASS'Y (205/212/412	HI FWI	D) NTS	
DATE	09.0	9.30	COPYRIGHT © 2000 BY DART AT	ON THE EXPRE	SS CONDITION THAT IT IS	







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DRAWING NO.	TITLE	REV. D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
	XTUBE ASSY (205/212/41	2 HI FWD)	<b>ENGINEERING ORDER</b>	D212-664-141-D-1	SHEET 1 OF 2	NTS
DRAWN	CHECKED	P	MFG. APPR. R	APPROVED NA	DE APPR.	
DATE 11.04	.07 DATE	11, 64, 11	DATE ((.o\.(2	DATE 11/04/12	DATE 11.04.12	

PURPOSE:

ADD AN INSPECTION WINDOW TO UNDERSIDE OF CROSSTUBE.

CHANGE:

NOTES 2 OF SHEET 1 IS AMENDED AS FOLLOWS:

<u> 15:</u>

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND

PAINT OUTSIDE PER DART QSI 005 4.2

REMOVE MASKING AND APPLY CLEAR COAT

WAS:

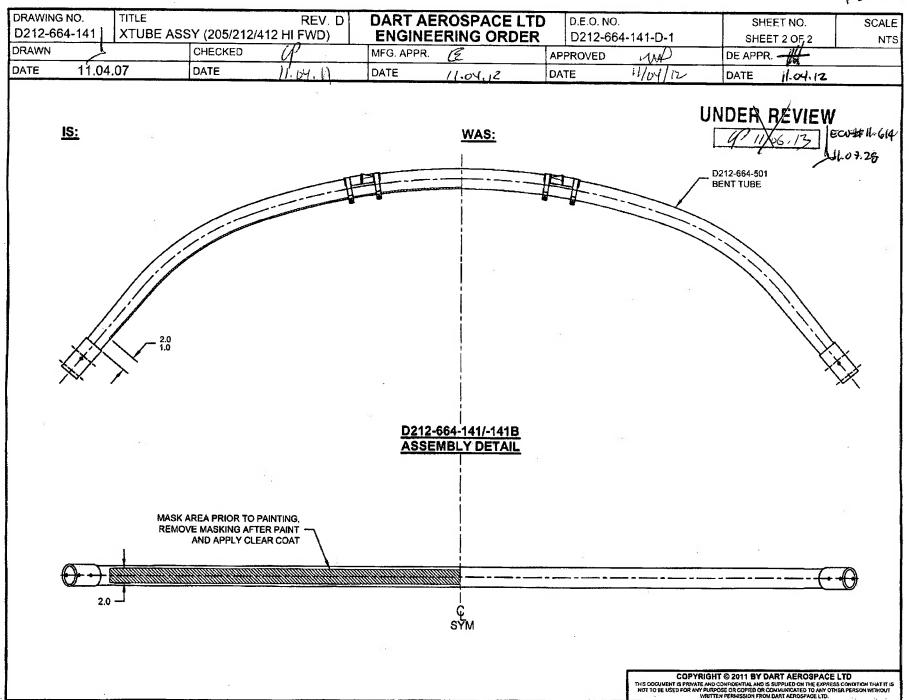
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

PAINT OUTSIDE PER DART QSI 005 4.2

DELEASE 2011 -04- 180

UNDER REVIEW



grest

DRAWING NO.	TITLE REV. D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D212-664-141	CROSSTUBE ASS'Y (205 HI FWD)	ENGINEERING ORDER	D212-664-141-D-2	SHEET 1 OF 1	SCALE NTS
DRAWN /	CHECKED A>S	1450 4000 (0)		DE APPR.	1413
DATE 11.07.	15 DATE 11.07.20		1. /	DATE 11.07.21	

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

S:

Item	Qty -141	Qty -141B	Part Number	Description
7	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

#### WAS:

I TOUR TOUR TOUR TOUR TOUR TOUR TOUR TOUR					
TYPE II, CLASS 2 ADHESIVE)	7	A/R	A/R	MAGNOBOND 6398	ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

#### IS

- 12) TO INSTALL D2893-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

#### WAS:

- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



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gress

DRAWING D212-66		TITLE XTUBE ASS	SY (205/212/	REV. D 412 HI FWD)		EROSPACE L		D.E.O. NO. D212-664-141-D-3	SHEET NO.	SCALE NTS
DRAWN	AJS		CHECKED	P	MFG. APPR.			PROVED 16	DE APPR.	1113
DAŢE	12.06.	28	DATE	12.07.05	DATE	12.07.05	DA		DATE 12.07.05	

### PURPOSE:

ADD NEW CONFIGURATION WITH ANODIZED FINISH

### ADD -141F CONFIGURATION TO PARTS LIST AS SHOWN BELOW:

Item	Qty -141	Qty -141B	Qty -141F	Part Number	Description
1	Х			D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		Х		D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
			X	D212-664-141F	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD) (ANODIZED)
3	1	1	1	D6005-128	CROSSTUBE
4	2	2	2	D2893-1	SUPPORT
5	4	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

\*NOTE ITEM 7 HAS BEEN UPDATED IN ACCORDANCE WITH DEO D212-664-141-D-2

### **AMEND NOTE 2 AS FOLLOWS:**

IS:

2) FINISH -141 & -141B ONLY: a) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

b) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

c) MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1

d) PAINT OUTSIDE PER DART QSI 005 4.2

e) REMOVE MASKING AND APPLY MATTE CLEAR COAT

FINISH -141F: a) ANODIZE PER MIL-A-8625, TYPE II, CLASS 1.

b) ALODINE (DO NOT ETCH) PER QSI 005 4.1.2

c) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

d) MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1

e) PAINT OUTSIDE PER DART QSI 005 4.2

I) REMOVE MASKING AND APPLY MATTE CLEAR COAT

\*NOTE: BETWEEN FINISHING OPERATIONS EXTREME CARE MUST BE TAKEN NOT TO CONTAMINATE OR DAMAGE FINISHED SURACES.

WAS: (UPDATED PER DEO D212-664-141-D-1)

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1
PAINT OUTSIDE PER DART QSI 005 4.2
REMOVE MASKING AND APPLY CLEAR COAT



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